UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

DATE: APR – 5 2016

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
AK Steel Corporation, Mansfield, Ohio

FROM: David Sutlin, Environmental Engineer
AECAB (MN/OH)

THRU: Brian Dickens, Section Chief
AECAB (MN/OH)

TO: File

BASIC INFORMATION

Facility Name: AK Steel Corporation – Mansfield Works

Facility Location: 913 Bowman Street, Mansfield, OH 44901

Date of Inspection: July 11, 2016

Lead Inspector: David Sutlin, Environmental Engineer

Other Attendees:
1. Katharina Bellairs, Environmental Engineer, EPA
2. Karen Bezoski, Environmental Engineer, AK Steel Corporation
3. Mathew Montag, Environmental Affairs Manager, AK Steel Corporation

Purpose of Inspection: CAA Inspection

Facility Type: Steel mini-mill

Regulations Central to Inspection: NSPS Subpart AAa, Ohio SIP

Arrival Time: 1:45 PM
Departure Time: 4:45 PM

Inspection Type:

☒ Unannounced Inspection

☐ Announced Inspection

OPENING CONFERENCE

☒ Credentials Presented

☒ CBI warning to facility provided

The following information was obtained verbally from Ms. Bezoski and Mr. Montag unless otherwise noted.

Process Description:

This facility produces coils of stainless steel sheeting, mainly for use in the manufacture of car exhaust components. The facility also has the capability to produce carbon steel.

At the melt shop, scrap is first loaded from charge buckets into the tops of each of the #8 and #9 electric arc furnaces (EAFs). Charging typically occurs every hour. The heat cycle lasts approximately 2.5 hours for the #8 EAF and 3.5 hours for the #9 EAF, followed by tapping into a transfer ladle, which lasts approximately 4 minutes. The ladle delivers the molten metal through the top of the ladle into the argon-oxygen decarburization unit (AOD). The AOD reduces carbon content to .006% and also reduces nitrogen content. Tapping from the AOD into a teeming ladle then takes place, and this lasts for approximately 3 minutes. Next, the teeming ladle transfers the molten steel through a bottom valve into the ladle metallurgical furnace (LMF), where the steel is mixed with chromium (up to 18%) and other alloying elements.

The melt shop operations are controlled by two reverse air baghouses (#8 baghouse and #9 baghouse). Emissions from the #9 EAF are exhausted through a single canopy hood to the #9 baghouse. Emissions from the #8 EAF are exhausted through a side draft hood to the #8 baghouse and through an additional canopy hood to the #9 EAF. Both the AOD and LMF are controlled by the #8 baghouse. Differential pressure across each baghouse is monitored, including with set point alarms.

Staff Interview: A 3rd party contractor, Alloway Environmental Testing, performs daily visible emissions checks and Method 9 observations of the melt shop and the #8 and #9 baghouses.

Regarding a recent OEPA opacity violation at the south end of the melt shop, Mr. Montag stated that the Alloway contractor, Ms. Rosebrook, was conducting Method 9 observations at one of the baghouses from a position, near Dean Road, which did not afford a view of the emissions at the south end of the melt shop at the times they were occurring. Mr. Montag also stated the exact source of the fugitive emissions within the melt shop is unknown as there were no reported malfunctions at the time of the violation, but speculated the AOD could have been the source. There is an upcoming project to enlarge and improve the efficiency of the AOD canopy hood. Finally, Mr. Montag stated that the fugitives escaped through gaps in flashing around panels in the roof monitor and that those gaps have since been sealed.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:
EPA observed and captured photos and video of the EAFs, AOD, and LMF in operation (see Appendix A).

Field Measurements: were not taken during this inspection.

CLOSING CONFERENCE

Requested documents:

- June 2016 daily visible observation forms and air inspection checklists
- All deviation reports available since July 2015
- 2015 Title V certification
- 2015 EAF daily heat sheets
- 2016 NOV response and resolution letters
- AOD canopy hood engineering study (CBI)

SIGNATURES

Lead Inspector: David Sutton Date: 4/4/17

Section Chief: Brian DiBrino Date: 4/5/17

APPENDICES AND ATTACHMENTS

Appendix A: Photo/Video Log

- Inspection photos/videos: documented in Appendix A, and attached as external storage media

Contains Items Claimed as CBI – Non-Releasable
Facility Name: AK Steel Corporation – Mansfield Works
Facility Location: 913 Bowman Street, Mansfield, OH 44901
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CONFIDENTIAL BUSINESS INFORMATION ATTACHMENT

Tenova Goodfellow Engineering Study of AOD Canopy hood improvements – Project Report, attached as external storage media

Facility Name: AK Steel Corporation – Mansfield Works
Facility Location: 913 Bowman Street, Mansfield, OH 44901
Date of Inspection: July 11, 2016

APPENDIX A: FIELD NOTES AND FIELD MEASUREMENT DATA

- P7110001.JPG: Video of EAF #8 in operation
- P7110002.JPG – P7110008.JPG: Videos of EAF #9 in operation
- P7110009.JPG – P7110014.JPG: Videos of AOD in operation
- P7110015.JPG – P7110016.JPG: Melt shop emissions
- P7110017.JPG: Photo of LMF
- P7110018.JPG: Photo of melt shop roof